

What Is Claimed Is:

1. A micromechanical component, comprising:
a supporting body;
at least one at least partially unsupported membrane connected to the supporting body; and
at least one stabilizing element provided in an unsupported area on some areas of a surface of the at least one membrane.
2. The micromechanical component according to claim 1, wherein:
the micromechanical component corresponds to a sensor element.
3. The micromechanical component according to claim 1, wherein:
the at least one stabilizing element counteracts a deformation of the at least one membrane.
4. The micromechanical component according to claim 3, wherein:
the deformation includes one of a warping, a propagation of cracks, and a propagation of stresses in the at least one membrane.
5. The micromechanical component according to claim 1, wherein:
the at least one stabilizing element includes one of:
a web,
a plurality of webs,
parallel webs,
a mesh-like arrangement of webs,
a grid-like arrangement of webs,
a web designed as a ring,
a plurality of webs designed in concentric rings, and
a stabilizing area designed in the shape of one of a tongue and a rod.
6. The micromechanical component according to claim 1, wherein:
the at least one stabilizing element includes at least one of:

→ a ring-shaped skirt arranged around one of recesses and etching holes
in the at least one membrane, and
a stabilizing surface in corner areas of the at least one membrane.

7. The micromechanical component according to claim 1, wherein:

the at least one stabilizing element is arranged on one side of the at least one membrane facing the supporting body.

8. The micromechanical component according to claim 1, wherein:

the at least one stabilizing element is in direct contact with the at least one membrane and is bonded thereto in at least some areas in the unsupported area.

9. The micromechanical component according to claim 1, wherein:

the at least one membrane is unsupported in at least some areas above a recess etched in the supporting body, and
the at least one stabilizing element is arranged between the supporting body and the at least one membrane.

10. The micromechanical component according to claim 1, wherein:

the supporting body includes a silicon body.

11. The micromechanical component according to claim 1, wherein:

the at least one membrane includes a silicon compound and has a thickness of 10 nm to 10 μm .

12. The micromechanical component according to claim 11, wherein:

the silicon compound includes one of a silicon nitride layer, a silicon carbide layer, and a silicon dioxide layer.

13. The micromechanical component according to claim 1, further comprising:

a circuit structure arranged on the at least one membrane.

14. The micromechanical component according to claim 13, wherein:

the circuit structure includes at least one of at least one thermocouple and a sensitive component of a sensor element.

15. The micromechanical component according to claim 1, wherein:

a thickness of the at least one stabilizing element is between 10 nm and 5 μ m.

16. A method of producing a micromechanical component including a stabilized membrane that is unsupported in at least some areas above a supporting body made of silicon, comprising the steps of:

forming a first surface area within the supporting body including at least one surface area;

forming a second surface area of the supporting body that is at least partially in the first surface area;

selectively etching the first surface area down to an adjustable depth to form porous silicon, the second surface area at least almost not being etched;

depositing a membrane layer on a surface of the supporting body, the membrane layer covering the first surface area that has been rendered porous in at least some areas and covering the second surface area in at least some areas thereof; and

selectively removing the first surface area.

17. The method according to claim 16, further comprising the step of:

producing a recess in the supporting body in the selective removal of the first surface area out of the membrane layer, thus forming an unsupported membrane that is unsupported in at least some areas over the recess, so that the membrane layer is mechanically stabilized by the second surface area.

18. The method according to claim 16, further comprising the step of:

producing a p-doped silicon area as the first surface area in the supporting body.

19. The method according to claim 16, further comprising the step of:

producing an n-doped silicon area in the supporting body as the second surface area by redoping the first surface area.

20. The method according to claim 19, wherein the n-doped silicon area is produced by at least one of the steps of:

implanting one of phosphorus and arsenic in some areas, and
doping the supporting body in at least one of some areas and the first surface area with POCl_3 .

21. The method according to claim 16, wherein:

the step of selectively etching the first surface area is performed by performing an electrochemical anodizing in a hydrofluoric acid electrolyte.

22. The method according to claim 16, further comprising the steps of:

selectively removing the first surface area with one of a dilute potassium hydroxide solution and an oxidized porous silicon in the first surface area; and
performing a subsequent dissolution of the oxidized porous silicon with dilute hydrofluoric acid.

23. The method according to claim 16, further comprising the step of:

developing the second surface area as a stabilizing area that is joined to the membrane layer in some areas on one side in the form of one of a web, a ring, a mesh, a grid, a rod, and a tongue.

24. The method according to claim 12, wherein:

at least one of the first surface area and the second surface area is formed with a mask.

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